

Chapter II

THE FORMATION OF THE CORPS OF ENGINEERS AND THE RECRUITMENT OF ENGINEER TROOPS

In the autumn of 1776, Silas Deane continued to recruit experienced engineer officers abroad. At home, on September 16, Congress authorized enlargement of the Continental Army to 88 infantry battalions. Col. Rufus Putnam seized the opportunity and submitted to General George Washington the first plan to establish a corps of engineers as a permanent and distinct branch of the Army with its own regulations. In an explanatory letter, Putnam argued that engineer troops comprising artificers and sappers and miners were essential if the corps's officers were to execute fortifications satisfactorily. As Chief Engineer and a trusted advisor, Putnam pressed Washington to act expeditiously.

Keenly aware that technically skilled officers were rare, Putnam regarded the implementation of his plan as a means of supplying the Army with "regular-bred" engineers. As for himself, he said: "I . . . [have] not the vanity to suppose that my knowledge . . . [is] Such as to give me a Claim to the first rank in a Corps of Engineers."¹ He offered to resign in favor of a more qualified officer when the time came.

1. "WITH OUT A CORE OF ENGINEERS . . . THE WORKS NEVER WILL BE PROPERLY EXECUTED NOR DON IN A REASONABLE TIME"

Rufus Putnam to George Washington.

September 26, 1776

I Hope the Importence of the Subjects will be as Sufficent appollogie for the Freedom I take in addressing your Excelency at this time. I have long Wondered that no Corps of Engineeers was yet Established. The Number of Works to be Executed; the Nesesity of Dispatch in them; the Imposability for Common hands to be made at once to Comprehend what they ought to do. With out a Core of Engineeers is Established the Works Never will be properly Executed nor don in a Reasonable time. And I Cannot give my Ideas of Such a Core and there duty Better then In the Words of Mr.

Maigrets.² Speaking of them; Subordnary Discipline he Sais the first part of the Discipline Consists of the Divition of one Corps Into Several. And the Subdivition of the Latter into Still less; again: in the Construction of places that Corps of Workmen are Devided into Several others Who are called Bands. The officers of Each of those Companys Should be Engineeers. And tis a Leading Circumstance to the Success of any action that the Soldiers and there officers Should be acquainted with Each other Before hand. And tis from the Engineeers that the former are to Recive ordors for the Works of attack; defense; and Construction of places. Tis Evedent that the latter ought to be charged With the Conduct and Command of them. Engineeers are the Natural officers of Workmen. Ancient and constent useage has Confirmed the practise. Again: if teachers Ware appointed to Each of these priniple Corps, Such a Number of Hopefull youth might be formed as would be a grate Benifit to the Service. These Work men are properly Speeking Soldiers or Rather Both one and tother. There Business Being Either Fighting or Working as ocation Requiurs. The first Excercise to be taught them is the use of there arms; the Next is to keep them to there Business. The third kind of Exercise is the Instructing them in the Several forms of Dementions and Properties of Works. Again. All Workmen Employed in Building of any kind may Serve very well for Works of Fortification. Again: by this means you may have good Miners and Sappers in abundance who in time of Seages may Ease the Engineeers and Even Supply the Want of them up on ocation. Two years Experiance has fully Convinced me Sir that till the Engineeers are Rendered Intependent of any other Department for there artificers till they have Miners and Sappers or persons Seperate from the Common Futeague men to take Care of Sinking the Ditch properly laying the turf well and to Build the parrapet with its propper Talus. I say till this is don No Engineer will be able to Execute his Works Well. Nor do them in a Reasonable time. The Service has already Suffered Much and will Continue So to do till Some Such Corps as

RUFUS PUTNAM. *Millwright, surveyor, and member of a company of carpenters during the French and Indian War, Putnam (1738–1824) served briefly as Washington's Chief Engineer in 1776. Despite Putnam's lack of training, the Commander in Chief quickly grew to regard him as his favorite engineer. Even after taking a line command at the end of 1776, Putnam continued to give Washington engineering advice, occasionally erecting fortifications or engaging in reconnaissance. After the war Putnam surveyed the Maine territory and, as a director of the Ohio Company, founded Marietta, Ohio. President Washington appointed him judge of the Northwest Territory in 1790 and later named him the first surveyor general of the United States. The portrait is by Charles Willson Peale.*

Independence National Historical Park Collection



what I have mentioned is Established and to Convince your Exilency that I have no Intristed motives but the Common good; in this adress I Beg leave . . . to Inst the Department Serve the army are or may be So well Suplyed with Reguler Bread Engineers.

—Washington Papers, roll 38.

In his plan Putnam designated the carpenters as the largest group among the artisans in each company of sappers and miners. He set the artisans' pay lower than that commonly given those hired on contract by the Army. The regular pay of the Chief Engineer remained unchanged.

2. PUTNAM DETAILS THE FIRST PLAN FOR A CORPS OF ENGINEERS

Rufus Putnam to George Washington.

October 3, 1776

The following establishment of artificers, etc., are in proportion to the eighty-eight battalions of Infantry as one company to five and a half battalions, which I think is as small a proportion as will answer the ends proposed. The battalions in general may give fifty each for the works; the miners and sappers are in proportion to these nearly as one to ten. The carpenters will not exceed, if we are to consider they have in charge the making of platforms, chevaux-de-frise gates, guardhouses, ordnance stores and barracks within the fortifications or necessary for the garrison of each place, and many other things in the Engineer department. I have had no regard to carriages, beds, boxes, and other matters belonging to the Artillery; nor wagons or other carriages belonging to the Quartermaster's Department or barracks for the quartering of troops in general, nor any stores for the Commissary (except for the different fortresses, these only come within the Engineer department.) However, if the carpenters are thought to exceed, there may be a part of them attached to the Artillery, and the same with regard to smiths, and they may also be employed in any other department, when the fortifications do not require their labour. For my own part I should rather choose to increase their number than lessen them some; if the service does not require their labour they are not to be paid more than other troops, and subject to like duty. . . .

Field and Staff Officers in each Battalion	Their pay per month in doll[ar]s	Their extra allowances
		<i>Dollars per month</i>
1 Colonel or Chief Engineer	60	15
1 Lieut. Col. or Chief Director	50	15
1 Major or Sub-Director	40	15
1 Surveyor	33 $\frac{1}{3}$	30 for 2 clerks
1 Adjutant		
1 Chaplain		
1 Surgeon		
1 Mate		
1 Quartermaster		
1 Paymaster		

} Their pay the same
as in the Battalion
service

Each Company to consist of the following Officers, Artificers, etc., their pay the same as in the Battallion service:

	Their extraordinary allowance per day when employed in the works [<i>in dollars</i>]
1 Captain or Engineer in ordinary	1/2
1 Capt. Lieut. or Engineer extraordinary	3/8
1 Lieutenant or Sub-Engineer	1/3
1 Ensign or Practitioner Engineer	1/4
4 Sentinels or Train men of Band	1/6
4 Corporals or 2 Train men of Band	1/7
2 Drums and Fifes	—
30 Carpenters or Wheelwrights	1/8
5 Smiths	1/8
6 Masons	1/8
25 Miners and Sappers	1/8*
20 Labourers	1/12

} for each
man

*In time of siege one-fourth of a dollar.

—Force, *American Archives*, 5th
ser., 2:892–93.

Noting that “some establishment . . . is highly necessary and will be productive of the most beneficial consequences,” Washington quickly forwarded Putnam’s plan to Congress.³ When Congress failed to act, Putnam resigned his commission as engineer colonel and took command of the 5th Massachusetts Regiment. Truly dismayed by the loss of his favorite engineer, Washington protested to Congress: “Altho’ he is not a man of Scientific knowledge, he is indefatigable in business and possesses more practicale Knowledge in the Art of Engineering than any other we have in this Camp or Army.”⁴

Two months after taking command of the Army engineers in November 1777, Brig. Gen. Louis Duportail renewed pressure on Washington and Congress to establish a corps of engineers on a permanent basis. The Chief Engineer put forward his first written plan—reproduced below—in January 1778 at Valley Forge, where recent experience had convinced him of the need for additional engineer officers and for engineer troops.

At the outset Duportail stressed the Continentals' "deficiency in the practice of manoeuvres." Requiring added protection in the field, the Army had no choice but to employ fortifications. Duportail wisely pointed out the value of artificial as opposed to natural fortifications: they were adaptable to all situations. As engineer troops Duportail favored "vigorous Soldiers" with "preference . . . given to Carpenters and Masons."

After less than six months in America, Duportail already recognized the need for a unified command of the engineer troops and for coordinated planning of defenses. He urged particular care in selecting officers for the companies of sappers as they would replace the French officers when they returned home. This concern about the future of the engineer corps in America was an important aspect of Duportail's plan. By proposing that the sappers and miners be "instructed in every thing that relates to the construction of Field works," he renewed Putnam's linkage of engineering education with the formation of companies of engineer troops.

Duportail preferred reassigning men from the line to the sappers and miners rather than recruiting. Ultimately both approaches were tried. Neither worked very well.

3. DUPORTAIL PROPOSES "AN ESTABLISHMENT WHICH IS ABSOLUTELY INDISPENSABLE"

Louis Duportail's plan for an engineering corps.

January 18, 1778

If fortification is necessary in any Armies, it is peculiarly so in those, which like ours, from a deficiency in the practice of manoeuvres cannot oppose any to those of the enemy—being necessitated therefore to receive him on their own ground, they ought always to be protected either by a natural or artificial Fortification, if it were only to have (under favor of the resistance of this fortification) sufficient time to ascertain the Result of the Enemy's movements—where his principal force is directed—and where his greatest effort is to be made.

With respect to natural fortification—all situations do not afford it—and to rely entirely upon it, would involve prodigious restraint in the choice of Positions and exclude many excellent ones considered relatively to the

operations of War—it is therefore much more advantageous to have recourse to artificial Fortification which is applicable in all Situations.

The very great difficulties which I experienced in the last Campaign, both in setting on foot the most simple work and having it executed with the necessary Conditions, induce me to propose to His Excellency an Establishment which is absolutely indispensable, if he chooses to derive hereafter those succours from Fortification which it holds out to him.

I would desire to have companies of Sappers formed—they should be instructed in every thing that relates to the construction of Field works—how to dispose of the Earth—to cut the Slopes—face with turf or sods—make fascines—arrange them properly—cut and fix Palisades, etc.

The Sappers should be distributed in the different works, and a sufficient number of fatiguemen drawn from the line should be joined to them to work under their direction, by which means the work would be executed with a perfection and celerity which otherwise will ever be unknown in this army—it is, I believe, altogether useless to enlarge upon a matter so obvious—I proceed therefore immediately to the principal Conditions on which the Corps should be formed.

1st. The pay ought to be greater than that of ordinary foot soldiers because the Service is exceedingly hard—this is the practice in Europe, and they receive besides extraordinary pay when they work. Choice ought to be made of vigorous Soldiers and the preference should be given to Carpenters and Masons.

2. The Non-commissioned officers ought all to read and write, and be intelligent persons of good characters.

3. The Companies of Sappers ought to be altogether under the Command of the Head Engineer—for if the Major Generals had a right to employ them as they pleased, each, from a desire of fortifying his Camp in his own way, would ask for Sappers and they would all be taken from the Engineers. Besides as such partial works do not enter into the general plan of the position they are for the most part useless, ill concerted, and sometimes even dangerous.

4. The Captains of Sappers will be charged with the detail of their Companies, and each of them will be accountable to the Commanding officer of the Engineers in order that he may always know the State of the Companies, their Strength, etc.

5. Each Company should always have its Tools with it, carried on a waggon provided for the purpose—The Company should be answerable for all Tools lost—and in case any should be broken the pieces are to be produced to the officer to whom the detail of the Company is to be committed.

The Camp of the Sappers to be assigned by the Commanding officer of the Engineers adjacent to the place where they are to be employed.

Of the Officers—If it be important to choose the Privates in these Companies—it is much more so to choose the officers—The Congress ought,

in my opinion, to think of forming Engineers in this Country to replace us when we shall be called home—The Companies of Sappers now proposed might serve as a school to them—they might there acquire at once the practical part of the Construction of Works, and if choice be made of young men, well bred, intelligent and fond of Instruction, we shall take pleasure in giving them principles upon the choice of Situations, and the methods of adapting works to the ground.

If His Excellency approves my Plan—I would advise the speedy execution of it—in order that the Companies may have served their Apprenticeship before the opening of the Campaign.

These Companies ought not to be composed of Recruits—but Soldiers answering the description above should be taken from the line for the purpose. While I am employed in representing the defects of my branch of the Army—I entreat His Excellency to observe that four Engineers are not sufficient—of the four, one is always detached and sometimes two, which is the case at present—and I am left with only one officer—it is impossible for us to do the Service of the Army. . . .

—Kite, *Duportail*, pp. 47–50.

Although Washington strongly endorsed Duportail's suggestions, Congress again delayed action.⁵ However, on a recommendation from the Committee for Arrangements in the Army, Congress followed through on the plans of Putnam, Duportail, and Washington and voted on 27 May 1778 to establish three companies of engineer troops. The pay scale set by Congress was considerably higher than that put forward by Putnam. The engineer troops were to receive instruction in field fortifications. Their duties—the first engineering duties spelled out by Congress other than those given specifically to the Chief Engineer—were to guide fatigue parties in erecting fortifications and to repair damaged works.

4. "THEIR BUSINESS SHALL BE TO INSTRUCT THE FATIGUE PARTIES"

Resolution of Congress.

May 27, 1778

Resolved, That in the engineering department three companies be established, each to consist of—

	Dollars pay per month
1 Captain	50
3 Lieutenants, each	33 $\frac{1}{3}$
4 Sergeants, each	10
4 Corporals, each	9
60 Privates, each	8 $\frac{1}{3}$

These companies to be instructed in the fabrication of field works, as far as relates to the manual and mechanical part. Their business shall be to instruct the fatigue parties to do their duty with celerity and exactness: to repair injuries done to the works by the enemy's fire, and to prosecute works in the face of it. The commissioned officers to be skilled in the necessary branches of mathematics, the non-commissioned officers to write a good hand.

—Ford, *Journals of the Continental Congress*, 11:541–42.

On 4 June 1778 Congress conveyed their resolution to the Commander in Chief with orders to put the new arrangements into effect. He readily complied and in general orders issued on the 9th called for three captains and nine lieutenants to officer the companies of sappers. These orders amplified Congress's resolve by stating that "as this Corps will be a school of Engineers it opens a Prospect to such Gentlemen as enter it and will pursue the necessary studies with diligence, of becoming Engineers."⁶ Although nothing was said specifically at the time about the type of curriculum envisioned or how the instruction would be carried out, it was clearly intended that some sort of education would be available.

Difficulties in finding officers and enlisted men delayed full activation of the companies of sappers and miners more than two years. Duportail began interviewing officer candidates at once but volunteers came forward slowly. Of the eleven officers first nominated in March 1779, eight eventually received commissions.

As Duportail sought officers for the companies of engineer troops, Congress on 11 March 1779 passed a resolution forming the Army engineers into the Corps of Engineers. The Chief Engineer was required to report regularly to the Continental Board of War and the Commander in Chief and to propose annually the most advantageous placement of the engineers.

5. "THE ENGINEERS . . . SHALL BE FORMED INTO A CORPS"

Resolution of Congress.

March 11, 1779

Resolved, That the engineers in the service of the United States shall be formed into a corps, and styled the "corps of engineers;" and shall take rank and enjoy the same rights, honours, and privileges, with the other troops on continental establishment.

That a commandant of the corps of engineers shall be appointed by Congress, to whom their orders, or those of the Commander in Chief, shall be addressed; and such commandant shall render to the Com-

Philadelphia 14 May 1779 (346)

Sir

I received your excellency's letter and the Dispatch of Congress
inclosed which appoints me Commandant of the Corps of the
engineers. I beg you to receive and accept of the Congress my
thanks and assure them that I will make all my endeavours
to answer their expectations in the place which they are pleased
to trust me with.

I have the honor to be with the highest Respect

your most obedient
and very humble servant
Benjamin Franklin

By the ordering the Capt. Genl of Congress

mander in Chief, and to the Board of War, an account of every matter relative to his department:

That the engineers shall take rank in their own corps, according to the dates of their respective commissions:

That every year, previous to the opening of the campaign, the commandant of the corps shall propose to the Commander in Chief and to the Board of War, such a disposition of the engineers as he shall judge most advantageous, according to the knowledge which he is supposed to have of their talents and capacity.

Resolved, That the Board of War be empowered and directed to form such regulations for the corps of engineers and companies of sappers and miners, as they judge most conducive to the public service; and that the Board report such allowances as they judge adequate and reasonable to be made to officers of the corps of engineers for travelling charges, and when on command at a distance from camp, or in places where they can not draw rations.

—Ford, *Journals of the Continental Congress*, 13:305–06.

Congress also devised regulations for the Corps of Engineers and the sappers and miners. After reviewing the regulations, Washington submitted revisions relating to extra pay and travel allowances. Highly sensitive to arousing jealousy in other branches of the Army, he contended that the regulations should stipulate extra pay only “in cases of extraordinary fatigue and danger.” As for travel allowances, he preferred to deal with the engineers’ special needs as part of a general regulation, “for discriminations always produce discontent.”⁷ Congress agreed and incorporated the changes.

The regulations, which follow, outline the duties of the Chief Engineer and his subordinates and clarify command relationships. Engineers were directed to take part in selecting and planning encampments, to make plans of the works under their direction, and to keep a journal of all sieges. The sappers and miners’ main task was to construct field works as directed by the engineers, but when stationed at the head of the army on the march they were to perform the duties of pioneers, clearing the roads of obstructions and making repairs. Importantly, the regulations again addressed the issue of education: engineers were to lecture on technical subjects to the sappers and miners when they were not engaged with other duties.

LOUIS DUPORTAIL’S LETTER OF ACCEPTANCE. *In this letter to the president of Congress, dated 14 May 1779, Duportail accepted appointment as commandant of the Corps of Engineers.*

Record Group 360, National Archives

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To The Honourable Henry Laurens President & The Honourable
the Members in General Congress Assembled this 13th Day
of October 1778.

The Memorial of Richard Gridley Humbly Sheweth

That your Memorialist has served in the Continental Army
from the beginning, and has served faithfully as Chief Engineer
for the Original Establishment of Sixty Dollars p^r Month, &
Although all other Establishments have been enlarged yet
the Corps of Engineers has been forgotten, and as the Money
has been long depreciating, or the price of all Commodities
have been raising, your Memorialist does not now receive
more than One tenth part of his Original pay in Value,
which is no ways equal to support that Character & he has
been for a Considerable time a Warfare at his own Expence, &
prays this Honourable Congress to Grant him a Reimbursement
equal to his Loss, as it will be much more easy & just for
the public to support that Loss, than your Memorialist's.

The Honourable Congress were pleased to resolve on
the 17th of November 1775 that Congress will Indemnify him
for any Loss of Staff pay which he may sustain in consequence
of his having been in the service of the United Colonies:—

Your Memorialist avers, that he never has received any
Staff pay from Great Britain since December 24th 1774, nor
does he expect it, neither has he received any Staff pay from
the United States since he has been in the Continental Service,
& prays your Honours to direct him how he shall draw for
his Staff pay, & at what times, either Quarterly, or Half
Yearly, his Staff pay was Five shillings Sterling & day,
& your Memorialist as in Duty bound shall ever pray.

Rich^d Gridley

6. REGULATIONS FOR THE CORPS OF ENGINEERS

From George Washington's general orders.

July 30, August 2, and August 3, 1779

1st. The Commandant of the Corps of Engineers or commanding Engineer in an army shall render an account to the commanding General of every thing that concerns the service of the Corps, and shall, in all cases which relate to the department act under the orders and with the concurrence of the commanding General.

2ndly. Whenever the army is on a march an Engineer shall attend the Quarter Master General or officer ordered to fix on the place of encamping, to give his advice and opinion thereon, and he shall also as soon as may be take a plan of the camp and report it to the General.

3rdly. The Commandant of the corps of Engineers and the commanding Engineer in a separate Army shall send plans of the more important positions and places occupied by the army in which they shall respectively serve to the board of War. These plans will of course be delivered to the Commander in Chief or General commanding a separate army by the Commandant of the Corps of Engineers or commanding Engineer.

The Subordinate Engineers will also report plans of works intrusted to them by their superior officers, to such superior officers; and no plans are to be communicated by any Engineer to any other person or persons whatever.

4thly. In the attack of Towns, Forts or fortified Camps of an enemy, by regular approaches, the commanding Engineer shall direct the operations under the authority and with the approbation of the commanding General, to whom he shall daily transmit a plan, marking out the progress of the attack and shall likewise from time to time transmit to the Board of War a plan of the said attacks together with a journal of the operations.

5thly. In a besieged place the commanding Engineer shall direct the defence of it under the orders of the commanding officer of the Garrison and he shall keep an exact journal of all the operations in order that it may serve for his justification and for that of the garrison in case of a surrender.

RICHARD GRIDLEY'S PETITION TO CONGRESS. *In this memorial dated 13 October 1778, Richard Gridley, chief engineer of the Army's Eastern Department, complained that Congress had not increased his original pay of \$60 per month: "Although all other Establishments have been enlarg'd, . . . the Corps of Engineers has been forgotten." As prices had risen, money had depreciated to the point that he estimated his pay at no more than one-tenth its original value.*

Record Group 360, National Archives

Of the Companies of Sappers and Miners:

1st. Until men are inlisted for the purpose, Companies of Sappers and Miners not exceeding three shall be formed as circumstances may require by drafts from the line at the direction of the Commander in Chief and be under the command of the Commandant of the Corps of Engineers until otherwise ordered by Congress.

[2ndly.] Each company to consist of a Captain, a Captn. Lieutenant and a 1st. and 2nd. Lieutenant, four serjeants, four Corporals, one Drummer, one Fifer and Sixty privates.

3rdly. The duty of the Companies of Sappers and Miners shall be (under the direction of the Engineers) to construct field-works of every kind and all works necessary for the attack or defence of places as circumstances may require.

4thly. When a company or part of a company of Sappers and Miners is detached with any body of troops without an Engineer, the officer commanding the company or part of the company shall take his orders directly from the commanding officer of the troops, and whensoever an Engineer having the charge of any works shall be absent, the officer of the Sappers and Miners commanding the detachments employed in constructing them, shall direct the works agreeable to the plans and instructions formed by such Engineer.

5thly. When the Companies of Sappers and Miners shall not be sufficient to perform the duties assigned them, the commanding Engineer shall apply to the commanding General to furnish him with such a number of fatigue men from the line, as the service shall require.

6thly. The officers of the line detached with the command of fatigue parties, for assisting in constructing the works shall not interfere in directing them, but shall be wholly confined to keeping their soldiers employed and maintaining a proper order and discipline.

7thly. The Sappers and Miners shall, in case of extraordinary fatigue and danger, have such gratuities over and above their pay as the commanding Engineer with the concurrence of the commanding General of the Army shall think they deserve.

8thly. The officers of Sappers and Miners shall enjoy the same rights honors and privileges with the officers of the like ranks in the other corps of the army.⁸

11thly. From the time the men are drafted and during their continuance in these companies they are to be left out of the Pay-Rolls of their respective regiments.

14thly. The Sappers and Miners shall be taught the established manual Exercise and Evolutions on days when they are not employed in the particular duties of their department and the same police and discipline shall be practiced in their companies as in the other parts of the army.

15thly. The Commandant of the Corps of Engineers shall take the most effectual and expeditious method to have the Sappers and Miners in-

structed in their duty, and as probably the officers of these companies whose talents and acquirements fit them for the profession, will be appointed Engineers, the Commandant of the Corps of Engineers shall form a plan of instructions for these officers which being approved by the board of War and Commander in Chief shall be carried into execution.

16thly. The Commandant of the Corps of Engineers shall appoint an Engineer or Engineers whom he shall judge but best qualified, to read lectures on fortification proper for towns or the field; on the manner of adapting fortifications to different grounds and positions; to regulate their extent according to the number of men intended to be covered; Upon Attack and Defence; Upon the use of Mines and their construction; Upon the manner of forming plans, reconnoitering a country and choosing, laying out and fortifying a Camp.

17thly. On a march, in the vicinity of an enemy, a detachment of the Companies of Sappers and Miners shall be stationed at the head of the column, directly after the Van Guard for the purpose of opening and mending the roads and removing obstructions.

—Fitzpatrick, *Writings of Washington*, 16:21–23, 37, 46–48.

Because of repeated complaints from line commanders, Washington suggested recruitment as an alternative to drafts from the line.⁹ Congress offered a bounty of \$200 to each enlistee and a \$20 commission to the recruiting officer. In a letter seeking officers and enlisted men in Pennsylvania, Duportail stressed that Pennsylvania would benefit when her sappers and miners returned home, the officers having acquired “all the knowledge necessary to engineers” and the soldiers having learned “to Construct all the works relative to fortifications.”

To be sure, Duportail had always believed that the sensitive nature of the engineers’ work required officers of proven loyalty, but he rarely expressed the view with such openness. He was confident that instructors of mathematics attached to each company would remedy the educational defects of the young recruits.

7. “IT WOULD BE VERY ADVANTAGEOUS TO . . . PENSILVANIA TO FURNISH A NUMBER OF THESE SOLDIERS”

Louis Duportail to Joseph Reed, President of the Supreme Executive Council of Pennsylvania.

West point, 10th September, 1779

Sir,

Congress some time since ordered the formation of three Companies of sappers and miners, of which they were pleased to honor me with the

Command. The soldiers for these Companies were originally to be drafted from the line, but his excellency, general washington, finding some inconveniency in doing it at this time prefers their being raised. In Consequence he has written to Congress praying them to recommend it to the different states, to permit this levy, which Recommendation your excellency will probably receive. I therefore send Captain McMurray¹⁰ into your state to recruit for these Companies and I intreat that you will be pleased to give the business all the aid of which it may stand in need.

Cap. McMurray has the regulations made by Congress for these Companies. I dare pray you to have the goodness to run them over and you will see what is to be their service and their instruction; you will see that the officers are to have the means of acquiring all the knowledge necessary to engineers, and that the soldiers will learn to Construct all the works relative to fortifications. May I therefore be permitted to observe that it would be very advantageous to the state of pensilvania to furnish a number of these soldiers who, returning into their own Country after being instructed, may be of the greatest utility to it. As I flatter myself your excellency will judge of it in the same manner, and your eagerness to form every kind of establishment useful to the state which you govern is well known, I take the liberty to propose to you the formation of one of these Companies of sappers and miners, to belong to the state itself. This plan has been mentioned to general washington and met his approbation in that case. As there are two vacancies in the Company of Mr. McMurray they Could be granted to two gentlemen of the the state of pensilvania for this purpose; if your excellency should be acquainted with any gentlemen disposed to embrace this profession and proper for it, I should esteem it a favor you would send them to me for examination. The qualities necessary for the officers of sappers and miners are in the first place a good education in general, which will be a security for the integrity of their sentiments. It must be Considered that these officers becoming Engineers and so in a situation to have in their hands the plans of the frontiers of the fortifications, the memorials concerning them, in a word all that has relation to the defence of the state, they ought to be qualified to inspire great Confidence in their fidelity and in their attachment to their Country; in the next place it is proper they should have some mathematical Knowledge—the more they have the better; but we may not exact a great deal from young men who do not exceed the age of twenty, who besides have had a good education, possess a fund of intelligence and show an inclination to instruct themselves, they may be the easier dispensed with, as there will be a master of mathematics attached to the Companies, and they will be furnished with regard to this object with all the means to supply the defects of their education.

—*Pennsylvania Archives*, 1st
ser., 7:690–91.



MOSES CLEAVELAND. *Known best for founding Cleveland, Ohio, in 1796, Cleaveland (1759–1806) served during the Revolution as an officer in the sappers and miners. A native of Connecticut, Cleaveland graduated from Yale University before entering the Army in 1777. After the war he practiced law, joined his state's chapter of the Society of the Cincinnati, was a delegate to the Connecticut convention to ratify the U.S. Constitution, and, as a director of the Connecticut Land Company, speculated in land.*

Library of Congress

By the summer of 1780 the companies of sappers and miners still lacked a full complement of officers and enlisted men. According to the officers, the problem resulted in part because they had never "been put upon a proper footing for the recruiting business."¹¹ Meanwhile, the officers already on active duty were "acquiring a knowledge of the service to which they . . . were destined," but they waited impatiently to perform some worthwhile service for their country.¹²

Endeavoring to salvage the situation and get the troops he still needed, Washington reinstituted drafts from the line,¹³ proposing to take one man from each regiment. Joseph Plumb Martin, who joined the sappers and miners as a corporal, was drafted in this manner. His engaging recollection, reproduced below, is the only surviving account by a member of the engineer troops.

Martin's narrative underscored the youthfulness of his corps, which sought "as intelligent young men as could be procured," although "some of us fell considerably short of perfection." With typical humor, Martin described the manner of his draft; hungry days without "belly timber"; and faithful service to his country, despite her being "a light-heeled wanton of a wife."

8. "THIS CORPS OF MINERS WAS RECKONED AN HONORABLE ONE"

From the narrative of Joseph Plumb Martin.

And now there was to be a material change in my circumstances, which, in the long run, was much in my favor. There was a small corps to be raised by enlistments, and in case of failure of that, by drafts from the line. These men were called "Sappers and Miners," to be attached to the engineer's department. I had known of this for some time before, but never had a thought of belonging to it, although I had heard our major (to whose company I belonged) tell some of our officers (after I had neatly marked his name upon his chest) that if there was a draft from our regiment, he intended I should go, although, he added, he did not wish to part with me. I, however, thought no more about it, till a captain of that corps [David Bushnell] applied for a draft of one man from each regiment throughout the whole army present. The captain was personally acquainted with our major and told him he would like to have him furnish him with a man from the regiment that he knew was qualified for a non-commissioned officer. The major then pitched upon me.

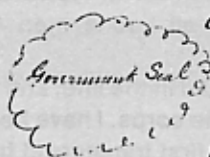
I was accordingly transferred to this corps and bid a farewell forever to my old comrades, as it respected any further associating with them, or sharing in their sufferings or pleasures. I immediately went off with this (now my) captain and the other men drafted from our brigade, and joined the corps in an old meetinghouse at the Peekskill. It was after dark when

we arrived there. I had now got among a new set, who were, to a man, entire strangers to me. I had, of course, to form new acquaintances, but I was not long in doing that. I had a pretty free use of my tongue, and was sometimes apt to use it when there was no occasion for it. However, I soon found myself at home with them. We were all young men and therefore easy to get acquainted.

I found nothing more here for belly timber than I had in the line, and got nothing to eat till the second day after I had joined the corps. I have heard it remarked by the old farmers that when beasts are first transferred from one place to another, that if they keep them without food for two or three days, it will go far towards wonting them to their new situation. Perhaps it might be so thought by our commanders. Be that as it would, I got nothing, as I have said, till the second day I had been with them. We then drew, if I remember right, two days rations of our good old diet, salt shad, and as we had not, as yet, associated ourselves into regular messes, as is usual in the army, each man had his fish divided out by himself. We were on the green before the meetinghouse and there were several cows feeding about the place. I went into the house to get something to put my fish into, or some other business, and stayed longer than I intended, or rather ought to have done, for when I came out again, one of the cows was just finishing her meal on my shad; the last I saw of it was the tail of a fish sticking out of the side of her mouth. I was vexed enough to have eaten the weight of it off her carcass, but she took care of that, and I had another opportunity (if well improved) of mortifying my body by fasting two days longer, but I got something among the men, as poorly as they were off, to sustain nature till I could get more by some means or other. Such shifts were nothing strange to us.

This corps of Miners was reckoned an honorable one; it consisted of three companies. All the officers were required to be acquainted with the sciences, and it was desirable to have as intelligent young men as could be procured to compose it, although some of us fell considerably short of perfection. Agreeable to the arrangement between my former commander and my new captain, I was appointed a sergeant in this corps,¹⁴ which was as high an office as I ever obtained in the army, and I had some doubts in my own mind, at the time, whether I was altogether qualified for that. However, I was a sergeant and I think I *did* use my best abilities to perform the duties of the office according to my best knowledge and judgment. Indeed, I can say at this late hour of my life, that my conscience never did, and I trust never will, accuse me of any failure in my duty to my country, but, on the contrary, I always fulfilled my engagements to her, however she failed in fulfilling hers with me. The case was much like that of a loyal and faithful husband, and a light-heeled wanton of a wife. But I forgive her and hope she will do better in future.

—Martin, *Private Yankee Doodle*, pp. 194–6, 198.



Commission of Capt. by Moses Cleveland 1780

The United States of America
In Congress Assembled. -

To Moss Cleveland Esquire, Greting; Representing
special trust and confidence in your Calistiam, Value, Bravest and
Fidelity Do by these presents constitute and appoint you to be a
Captain in the Companies of Support and Wine, in the Army
of the United States, to take rank as such from the 2^d day of
August 1779. - You are therefore carefully and diligently to dis-
charge the duty of a Captain by doing and performing all man-
ner of things therunto belonging. And we do strictly charge and
require all Officers and Soldiers under your command, to be
obedient to your commands as Captain. And you are to serve and
follow such orders and directions from time to time, as you shall
receive from this or a future Congress of the United States or
Committee of Congress for that purpose appointed, a Committee of the
States or Commanding-in-Chief for the time being of the Army of the
United States, or any other superior officer, according to the rules and
discipline of the War, in pursuance of the trust reposed in you. -
This commission to continue in force until revoked by this, or a
future Congress, the Committee of Congress before mentioned, or a
Committee of the States. -

Entered in the War Office Witness His Excellency Saml Huntington Esq. President of
not examined by the Congress of the United States of America, at Philadelphia
the Board - Collect the 14th day of February, 1780, and in the fourth year of
our Independence.

Ben Howard
Secretary of the Board of War.

Sam. Huntington President.

By fall 1781 the companies of sappers and miners were fully activated and ready to participate in the Yorktown campaign. The extent to which the engineer troops provided technical education is unclear. On 26 May 1780, for example, several officers complained that the regulation regarding lectures on fortifications and mining was not being carried out.¹⁵ Martin's detailed account of life within the engineer corps after 1780 said nothing about officers receiving any type of instruction, even during long periods when the companies were stationed at West Point and presumably had some free time. Nor did Duportail's correspondence with the engineer officers under his command contain orders to read lectures to the sappers and miners. Apparently what knowledge of fortifications, mining, and reconnaissance the sappers and miners gained was largely the result of their experience in the field.

COMMISSION IN THE SAPPERS AND MINERS. *Draft of a commission as a captain in the sappers and miners issued to Moses Cleaveland on 14 February 1780 but backdated to 2 August 1779.*

Western Reserve Historical Society